

Appln. No.: 09/691,936
Amendment Dated March 19, 2004
Reply to Office Action of December 19, 2003

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Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Currently Amended) An electronic message distributing apparatus for distributing electronic messages from a database to one or more agents, the database storing, in respect of each electronic message to be distributed, a set of one or more message classes into which the respective electronic message is deemed to belong, the distributing apparatus comprising:

means for determining, from said database, at least one message class in which an electronic message is deemed to belong;

means for selecting, from a directory of one or more agents, an agent that has a capability to process electronic messages that belong to said at least one message class by providing a response in respect of said at least one message class;

means for causing said electronic message to be rendered to said selected agent for processing thereby; and

means for receiving from said selected agent a signal indicating that said electronic message is processed and that a response to said message is provided in respect of said at least one message class;

wherein, upon receipt of said signal, the distributing apparatus is arranged to determine, from said database, if said set includes one or more message classes in respect of which said electronic message is not processed and, in response to determining that said electronic message has not been processed in respect of one or more message classes in said set, is arranged to select a further agent to which to cause said electronic message to be rendered, which further agent has a capability to process messages which belong to one or more of said unprocessed message classes.

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2. (Original) An electronic message distributing apparatus as claimed in Claim 1, wherein each message class comprises a respective message group, each message group comprising one or more message categories.

3. (Original) An electronic message distributing apparatus as claimed in Claim 1, including means for recording that said electronic message is processed in respect of said at least one message class.

4. (Original) An electronic message distributing apparatus as claimed in Claim 1, wherein said agent directory includes, in respect of each agent, a set of one or more message classes in respect of which the respective agent has a capability of dealing with electronic messages, the distributing apparatus including means for comparing said selected agent message classes set with said set of message classes into which the electronic message is deemed to belong, whereupon receipt of said signal from said selected agent, the distributing apparatus determines that said electronic message is processed in respect of all message classes that are common to both of said message class sets:

5. (Currently Amended) An electronic message processing system for distributing electronic messages amongst a plurality of agents, the system comprising:

a database arranged to store, in respect of each electronic message to be distributed, a set of one or more message classes into which the respective electronic message is deemed to belong; and

a directory of one or more agents, said directory including, in respect of each agent, a set of one or more message classes in respect of which the respective agent has a capability of dealing with electronic messages;

a distributing apparatus arranged to distribute electronic messages to one or more of said agents, the distributing apparatus comprising:

means for determining, from said database, at least one message class in which an electronic message is deemed to belong;

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means for selecting, from said directory, an agent that has a capability to process electronic messages that belong to said at least one message class by providing a response in respect of said at least one message class;

means for causing said electronic message to be rendered to said selected agent for processing thereby; and

means for receiving from said selected agent a signal indicating that said electronic message is processed and that a response to said message is provided in respect of said at least one message class;

wherein, upon receipt of said signal, the distributing apparatus is arranged to determine, from said database, if said set includes one or more message classes in respect of which said electronic message is not processed and, in response to determining that said electronic message has not been processed in respect of one or more message classes in said set, is arranged to select a further agent to which to cause said electronic message to be rendered, which further agent has a capability to process messages which belong to one or more of said unprocessed message classes.

6. (Original) An electronic message processing system as claimed in Claim 5, wherein each message class comprises a respective message group, each message group comprising one or more message categories.

7. (Original) An electronic message processing system as claimed in Claim 5, wherein said distribution apparatus includes means for recording that said electronic message is processed in respect of said at least one message class.

8. (Original) An electronic message processing system as claimed in Claim 5, wherein the distributing apparatus includes means for comparing said selected agent message classes set with said set of message classes into which the electronic message is deemed to belong, whereupon receipt of said signal from said selected agent, the distributing apparatus determines that said electronic message is processed in respect of all message classes that are common to both of said message class sets.

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9. (Original) An electronic message processing system as claimed in Claim 5, wherein said database includes a first set of data records, said first data record set including one or more respective data records for each electronic message, each data record including means for identifying the respective message to which it relates; and means for identifying a respective message class in which said respective message is deemed to belong.

10. (Original) An electronic message processing system as claimed in Claim 9, wherein each data record further includes status identifying means for indicating whether or not said respective message has been processed by an agent in respect of said respective message class, the distribution apparatus being arranged to cause said status identifying means to be updated in response to said signal from said agent.

11. (Original) An electronic message processing system as claimed in Claim 10, wherein the distributing apparatus is arranged to update the status identifier of each data record that relates to the message processed by said selected agent and that relates to a message class in respect of which said selected agent is capable of processing messages.

12. (Original) An electronic message processing system as claimed in Claim 9, wherein each data record further includes a priority identifier which indicates the relative priority of said data record in relation to the other data records held in said first data record set in respect of the same electronic message, the distributing apparatus being arranged to select an agent that has a capability to process electronic messages belonging to the message class identified in the data record which has highest priority and in respect of which message class the electronic message is not already processed.

13. (Original) An electronic message processing system as claimed in Claim 12, wherein the relative priority of data records for an electronic message is determined by the level of confidence with which said electronic message is deemed to belong to the message category identified in the respective data records.

14. (Original) An electronic message processing system as claimed in Claim 9, wherein message class identification means is a group identification means, where a group comprises one or more message categories.

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15. (Original) An electronic message processing system as claimed in Claim 14, wherein said data records further include means for identifying one or more categories to which said respective electronic message is deemed to belong.

16. (Original) An electronic message processing system as claimed in Claim 9, including a classification apparatus, the classification apparatus comprising:

means for causing an electronic message to be classified into one or more message classes according to message content;

means for creating a respective data record, in said first data record set, for said one or more message classes.

17. (Original) An electronic message processing system as claimed in Claim 16, wherein each message class is associated with an indication of the confidence level with which said message class is assigned to the message, said database further including a second set of data records, said second data record set including one or more respective data records for each electronic message, each data record including means for identifying the respective message to which it relates; and means for identifying a respective message class in which said respective message is deemed to belong,

the classification apparatus being arranged to create a data record, in said second set of data records, in respect of the message class assigned to said electronic message with the highest level of confidence,

the classification module being further arranged to include in the or each data record in said first set of data records an indication of the relative priority of each data record,

wherein, the distributing apparatus is arranged to select a data record from said second data record set and to select an agent that is capable of processing messages belonging to the message class identified in said selected data record, the distributing apparatus being further arranged, upon receipt of said signal from said agent, to refer to said first set of data records and to create a new entry in said second set of data records in respect of the message class

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Indicated in the data record in said first set which bears the highest priority and in respect of which message class the message has not been processed.

18. (Original) An electronic message processing system as claimed in claim 5, wherein said agent directory includes means for indicating the availability of each agent.

19. (Original) A message processing system as claimed in Claim 5, wherein said electronic messages include electronic mail messages (e-mails).

20. (Original) A message processing system as claimed in Claim 5, wherein said electronic messages include SMS (short message service) messages.

21. (Currently Amended) In an electronic message processing system for distributing electronic messages amongst a plurality of agents, the system comprising: a database arranged to store, in respect of each electronic message to be distributed, a set of one or more message classes into which the respective electronic message is deemed to belong; and a directory of one or more agents, said directory including, in respect of each agent, a set of one or more message classes in respect of which the respective agent has a capability of dealing with electronic messages, a method of processing electronic messages, the method comprising:

determining, from said database, at least one message class in which an electronic message is deemed to belong;

selecting, from said directory, an agent that has a capability to process electronic messages that belong to said at least one message class by providing a response in respect of said at least one message class;

causing said electronic message to be rendered to said selected agent for processing thereby;

receiving from said selected agent a signal indicating that said electronic message is processed and that a response to said message is provided in respect of said at least one message class;

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determining, upon receipt of said signal, if said set includes one or more message classes in respect of which said electronic message is not processed;

selecting, in response to determining that said electronic message has not been processed in respect of one or more message classes in said set, a further agent to which to cause said electronic message to be rendered, which further agent has a capability to process messages which belong to one or more of said unprocessed message classes.

22. (Original) A method as claimed in claim 21, further including recording that said electronic message is processed in respect of said at least one message class.

23. (Original) A method as claimed in Claim 21, further including comparing said selected agent message classes set with said set of message classes into which the electronic message is deemed to belong, and, upon receipt of said signal from said selected agent, determining that said electronic message is processed in respect of all message classes that are common to both of said message class sets.

24. (Original) A method as claimed in Claim 22, wherein said database includes a first set of data records, said first data record set including one or more respective data records for each electronic message, each data record including means for identifying the respective message to which it relates; means for identifying a respective message class in which said respective message is deemed to belong; and status identifying means for indicating whether or not said respective message has been processed by an agent in respect of said respective message class, the method further including causing said status identifying means to be updated in response to said signal from said agent.

25. (Original) A method as claimed in Claim 24, further including updating the status identifier of each data record that relates to the message processed by said selected agent and that relates to a message class in respect of which said selected agent is capable of processing messages.

26. (Original) A method as claimed in Claim 24, wherein each data record further includes a priority identifier which indicates the relative priority of said data record in relation to the other data records held in said first data record set in respect of the same electronic

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message, the method further including selecting an agent that has a capability to process electronic messages belonging to the message class identified in the data record which has highest priority and in respect of which message class the electronic message is not already processed.

27. (Original) A method as claimed in Claim 26, wherein the relative priority of data records for an electronic message is determined by the level of confidence with which said electronic message is deemed to belong to the message category identified in the respective data records.

28. (Original) An method as claimed in Claim 24, wherein message class identification means is a group identification means, where a group comprises one or more message categories.

29. (Original) A method as claimed in Claim 24, wherein the system includes a classification apparatus, the classification apparatus comprising means for causing an electronic message to be classified into one or more message classes according to message content; and means for creating a respective data record, in said first data record set, for said one or more message classes, wherein each message class is associated with an indication of the confidence level with which said message class is assigned to the message, said database further including a second set of data records, said second data record set including one or more respective data records for each electronic message, each data record including means for identifying the respective message to which it relates; and means for identifying a respective message class in which said respective message is deemed to belong, the method further including

creating a data record, in said second set of data records, in respect of the message class assigned to said electronic message with the highest level of confidence;

including in the or each data record in said first set of data records an indication of the relative priority of each data record;

selecting a data record from said second data record set;

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selecting an agent that is capable of processing messages belonging to the message class identified in said selected data record;

creating, upon receipt of said signal from said agent, a new entry in said second set of data records in respect of the message class indicated in the data record in said first set which bears the highest priority and in respect of which message class the message has not been processed.

30. (Currently Amended) A computer program product comprising computer program code stored on a computer usable storage medium for, when executed on a computer system, processing electronic messages in an electronic message processing system for distributing electronic messages amongst a plurality of agents, the system comprising: a database arranged to store, in respect of each electronic message to be distributed, a set of one or more message classes into which the respective electronic message is deemed to belong; and a directory of one or more agents, said directory including, in respect of each agent, a set of one or more message classes in respect of which the respective agent has a capability of dealing with electronic messages, a method of processing electronic messages, the method comprising:

determining, from said database, at least one message class in which an electronic message is deemed to belong;

selecting, from said directory, an agent that has a capability to process electronic messages that belong to said at least one message class by providing a response in respect of said at least one message class;

causing said electronic message to be rendered to said selected agent for processing thereby;

receiving from said selected agent a signal indicating that said electronic message is processed and that a response to said message is provided in respect of said at least one message class;

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determining, upon receipt of said signal, if said set includes one or more message classes in respect of which said electronic message is not processed;

selecting, in response to determining that said electronic message has not been processed in respect of one or more message classes in said set, a further agent to which to cause said electronic message to be rendered, which further agent has a capability to process messages which belong to one or more of said unprocessed message classes.